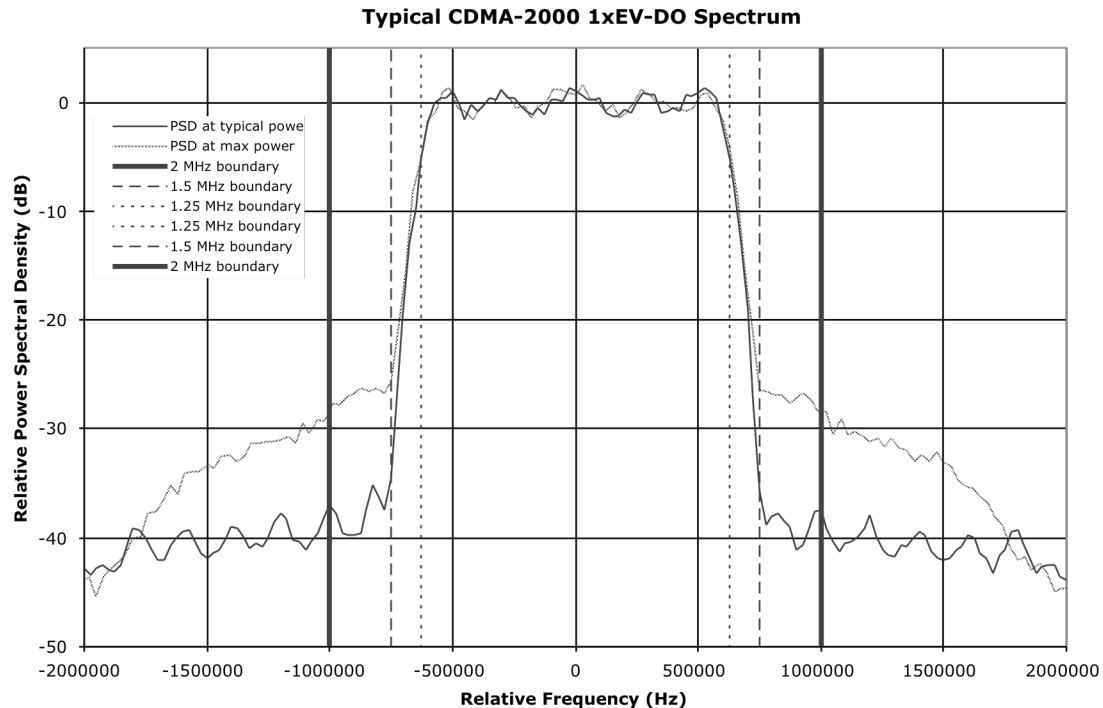


In order not to rule out common commercial technologies designed for a 1.25MHz transmission bandwidth such as CDMA-2000 based systems, for deployment on the 4 MHz air to ground band at 800 MHz, it is important that the Commission allow for guard bands of 125kHz on each side of a 1.25MHz wide carrier. Not doing so would preclude the use of such technologies, or at a minimum would cause grave difficulties for both the CDMA-2000 based or other 1.25 MHz bandwidth system and/or for the adjacent system(s) and result in substantially more expensive implementations.



The above figure shows a spectral plot for a CDMA-2000 1xEV-DO transmission. This is substantial similar to any of the commercially deployed 2G or 3G 1.25 MHz CDMA systems. The dotted lines delineate the nominal 1.25MHz channel bandwidth and the dashed lines delineate a 1.5MHz bandwidth. The important thing to note here is the 30dB difference in the power spectral density in the typical case and over 20 dB difference in the worst case between these points.

This plot demonstrates that in order to reasonably deploy a 1.25MHz CDMA system, the emissions must not be substantially restricted over a 1.5MHz bandwidth for each link direction.

Note that for a single operator it is usual for the operator to pack channels next to each other without guardbands. But in that case users receive from and transmit to a single location. In the case envisioned here where Commission would license two systems, a given receiver can see an adjacent system's carrier much larger relative to its own signal

than if both systems receivers were co-located (this is referred to as the so-called near-far problem). That is why allowance for guard bands is important here.

Note also that if the Commission is contemplating that a narrower band system would be separately allocated in the 4MHz ATG band in addition to the broadband system discussed here, and that that system be made up of multiple narrowband carriers, it would be desirable to place the broadband spectrum block toward the center of the band with the narrower band system having bandwidth on either side of the broadband carrier. This is to lessen interference to the services (cellular and SMR) adjacent to the ATG band. As a generalization, the area of significant OOB emissions is proportional to the carrier's bandwidth and the narrower carriers will impact less of the spectrum outside the ATG band.